

of field level technological interventions, which are capable of making a difference to rural life, are supported on regular basis by the government. Some examples of such interventions are: (1) development of rural technologies like solar drier for fish, portable cookers using briquettes made of biomass, modified multipurpose water mills, small biogas plants, etc. (2) during the last one year, the KVKs (in 540 rural districts) have conducted 1318 on-farm trials to identify the location specificity of technology under various farming systems, organized 33,942 frontline demonstrations to establish its production potential on farmers' fields, and 37,963 training programmes with participation of 8.4 lakh farmers and 84,925 extension personnel. The KVKs produced 5322.5 tonnes of seeds and 52.2 lakh planting material, besides 233.2 lakh livestock strain/ fingerlings for its availability to the farmers, and (3) 670 units of ultrafiltration membrane based water filters, based on the technology developed by a CSIR laboratory, have been installed in different rural areas for providing virus-free clean drinking water.

**Proposal for revolutionary advances in Nanoscience and Nanotechnology**

2832. SHRI VIJAY J. DARDA: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether Government have formulated any detailed plan to take advantage of the revolutionary advances being made in nanoscience and nanotechnology;

(b) if so, the details thereof, including the specific R&D projects drawn up in nanotechnology and investments proposed to be made in nanoscience and nanotechnology; and

(c) the details of similar investments already made/being contemplated in some other countries like the U.S.A., European Unions, China etc.?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) to (c) Yes, Sir. Various Ministries/Departments of Government of India such as the Department of Science and Technology (DST), Defence Research and Development Organizatoin (DRDO), Council of Scientific and Industrial Research (CSIR) and Department of Biotechnology (DBT) have been supporting R&D in Nano Science and Technology. DST launched

a special Nano Science and Technology Initiative (NSTI) in October 2001. The NSTI has been focusing on research and development in nanoscience and technology in a comprehensive manner so that India can become a significant player in the area and contribute to the development of new technologies besides carrying out basic research at the frontiers of knowledge. The programme supports R&D projects, strengthening of characterization and infrastructural facilities, creation of centres of excellence, generation of trained manpower, joint projects between educational institutions and industry for application development etc. The Government is embarking on plans for launching a Nano Science and Technology Mission (Nano Mission) with estimated public investment of Rs. 1000 crore over the next 5 years to further intensify its promotional efforts in this area. As part of the Nano Mission it is planned to launch a variety of educational and HRD programmes, R&D programmes, establish Centres of excellence, promote institution-industry linked projects through increased public private partnerships, promoting entrepreneurship through establishment of business incubators, etc. The Nano Mission also plans to make special efforts for development and commercialization of nano technology, not only through public private partnerships but also by encouraging and enabling the private sector to invest in, and leverage, this sunrise technology.

Realizing the immense potential of nanotechnology, countries across the world have been making substantial public investments for promoting this area. For example, with the launch of National Nanotechnology Initiative (NNI) in 2000, the government expenditure of USA increased from \$270 million in 2000 to about \$1 billion in 2005. Public investments in the European Union, China and South Korea were of the order of \$ 650 million, \$ 100 million and \$ 200 million respectively.

**R&D Institutions and scientific community for welfare of rural areas**

2833. SHRI BALAVANT ALIAS BAL APTE:  
SHRI SHREEGOPAL WAS:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether the public funded R&D institutions and the scientific community are not adequately responding to the needs of rural areas;